FINDING OF NO SIGNIFICANT IMPACT
FOR
SPRING MEADOWS COUNTY WATER DISTRICT
WATER SYSTEM IMPROVEMENTS

TO: ALL INTERESTED PERSONS

Date:	July 16, 2006
Action:	Water System Improvements Including: New 150,000 Gallon Buried Concrete Storage Reservoir Well Replacement Water Meters Distribution System Improvements Four Additional Fire Hydrants Administration Building
Location of Project:	Spring Meadows County Water District Missoula County, Montana
DEQ Funding:	$ 480,000
Total Project Cost:	$1,117,500

An environmental review has been conducted by the Montana Department of Environmental Quality (DEQ) for proposed funding for improvements to the Spring Meadows County Water District's water system. The proposed project involves the construction of improvements as listed above. The purpose of the project is to make improvements to the drinking water system that are needed to protect public health.

The affected environment will primarily be the area within the boundaries of the Spring Meadows County Water District and the immediate vicinity. The human environment affected will include the public water system and the 65 residences located within the District. Based on the environmental assessment, the project is not expected to have any significant adverse impacts upon terrestrial and aquatic life or habitat including endangered species, water quality or quantity, air quality, geological features, cultural or historical features, or social quality.

This project will be funded with low interest loans through the Montana Drinking Water State Revolving Fund Program, administered by the DEQ and the Montana Department of Natural Resources and Conservation (DNRC).

The DEQ utilized the following references in completing its environmental review of this project: a Uniform Environmental Checklist for Montana Public Facility Projects and a Preliminary Engineering Report dated April, 2004, both by Anderson-Montgomery Consulting Engineers, consulting engineer for Spring Meadows County Water District; and an environmental checklist completed by the DEQ. In addition to these references,

letters were sent to: the Montana Department of Fish, Wildlife & Parks (DFWP); DNRC; the United States Fish and Wildlife Service (USFWS); the United States Army Corps of Engineers (USACE); and the Montana State Historic Preservation Office (SHPO). Responses have been received from DFWP, USACE, and SHPO. These references are available for review upon request by contacting:

Mark Smith, P.E.
Montana Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901
Phone (406) 444-5325
Email: marks@mt.gov

Comments on this finding or on the EA may be submitted to DEQ at the above address. Comments must be postmarked no later than August 17, 2006. After evaluating substantive comments received, DEQ will revise the EA or determine if an EIS is necessary. Otherwise, this finding of no significant impact will stand if no substantive comments are received during the comment period, or if substantive comments are received and evaluated and the environmental impacts are still determined to be non-significant.

Signed,

Todd Teegarden, Chief
Technical & Financial Assistance Bureau

c: file

SPRING MEADOWS COUNTY WATER DISTRICT
DRINKING WATER FACILITIES

ENVIRONMENTAL ASSESSMENT

I. COVER SHEET

A. PROJECT IDENTIFICATION

Applicant:	Spring Meadows County Water District
Address:	PO Box 16172 Missoula, MT 59808
Project Number:	_____

B. CONTACT PERSON

Name:	Wendell Petersen, President Spring Meadows County Water District
Address:	PO Box 16172 Missoula, MT 59808
Telephone:	(406) 541-7613

C. ABSTRACT

Spring Meadows Subdivision is located approximately eight miles west of Missoula. Developed in the early 1990's, the community elected to form a county water district in 2002 to better manage its drinking water system. No major improvements have been made to the system since development, and the District is contemplating upgrades to address the following deficiencies:

1. The two wells that supply water to the system do not meet peak demand requirements;
2. Storage is inadequate to meet fire flow and summer demands;
3. Well No. 1 is contaminated with iron bacteria;
4. Well No. 2 pumps an excessive amount of sand;
5. Sand pumped into the distribution system prevents the use of water meters;
6. The distribution system is not properly designed to prevent stagnation; and
7. Low and potentially negative pressures develop during the irrigation season and periods of high demand.

The recommended alternatives from the preliminary engineering report include the following improvements:

1. The installation of approximately 65 residential water meters;
2. The construction of a 150,000-gallon concrete storage reservoir;
3. The construction of new water transmission mains connecting the wells and distribution system to the new storage reservoir;
4. The installation of new distribution lines to eliminate dead-ends that result in stagnation and low system operating pressures;
5. The installation of four new fire hydrants;
6. Improvements to an existing pump house and associated piping and equipment;

7. The drilling of a new well to replace Well No. 2. The new well is to be drilled to an approximate depth of 280' and cased with 8" steel casing; and
8. The construction of a 560 square foot administration building for the District.

The proposed water system improvements will ensure that drinking water meeting state and federal regulations is provided to all homes within the district.

The project will be funded by grants through the Montana Department of Natural Resources and Conservation Renewable Resource Grant and Loan Program, the Montana Department of Commerce Treasure State Endowment Program, local District funds, and a State Revolving Fund loan. Environmentally sensitive issues and features such as wetlands, floodplains, and threatened or endangered species are not expected to be adversely impacted as a consequence of the proposed project. No significant long-term environmental impacts were identified.

D. COMMENT PERIOD

Thirty (30) calendar days.

II. PURPOSE AND NEED FOR ACTION

A. DRINKING WATER SUPPLY, STORAGE, AND DISTRIBUTION SYSTEMS

Spring Meadows Subdivision consists of 64 homes and a fire station. Water service is provided by a public system consisting of two wells and an inadequate distribution system. Well No. 1 was drilled in 1992 to a depth of 280'. Well No. 2 was drilled in 1991 to a depth of 259' and was deepened to 293' in 1992 to increase production. The pumps in each of the wells have been replaced twice.

The distribution system is adequately sized, but it includes two dead-ends that result in inadequate system operating pressures and inadequate disinfection due to stagnation. Well No. 1 is contaminated with iron bacteria, and Well No. 2 produces sand that causes distribution system problems and prevents the use of water meters. The system does not have any storage capability and, as a result, fire flow requirements are not met.

B. PROPOSED PROJECT

The proposed project includes the following improvements:

1. The installation of 65 water meters for all users;
2. The construction of a 150,000-gallon concrete storage reservoir;
3. The construction of transmission mains to and from the new reservoir;
4. The replacement of Well No. 2 with a new well, pump, and controls;
5. The installation of four additional fire hydrants;
6. Partial water distribution system replacement to eliminate dead-ends;
7. Modification of the existing pump house; and
8. The construction of a 560 square foot administration building.

Proper water supply, storage, and distribution are important to the public health and safety of the residents of Spring Meadows Subdivision. Without these, water quality and public health and safety will be at risk.

III. ALTERNATIVES INCLUDING THE PROPOSED ACTION

A. WATER SUPPLY ALTERNATIVES

Five alternatives addressing the District's water supply needs included:

1. No action;
2. Improvements to existing Well No. 1
3. Improvements to existing Well No. 2
4. Replacement of existing Well No. 1
5. Replacement of existing Well No. 2

1. NO ACTION-This alternative would make no changes to the existing supply system. The consequences would be the continuation of iron bacteria treatment in Well No. 1 and the continued pumping of sand in Well No. 2. The no action alternative is preferred as it pertains to Well No. 1; because a new well would ensure increased production of water and could be designed to eliminate the pumping of sand, this alternative is not preferred as it pertains to Well No. 2.

2. IMPROVEMENTS TO EXISTING WELL NO. 1-This alternative would include the installation of a new 7.5 horsepower pump; the installation of a section of 8" well casing at the top of the pump; the installation of a new pitless adapter; the installation of new discharge piping; the installation of electrical modifications to convert single phase to three phase power to improve efficiency; and the installation of new wellhead components. Well No. 1 has a pump that is only three (3) years old, and recent jetting of this well has left the casing in operable condition. The iron bacteria contamination can be controlled with periodic jetting and chlorination. Because of these factors, this alternative is not recommended.

3. IMPROVEMENTS TO EXISTING WELL NO. 2-This alternative would include the installation of a new 20 horsepower pump; the installation of electrical modifications to convert single phase to three phase power to improve efficiency; the installation of a new power converter and pump controls; the construction of a small pump house in which to install the power converter and controls; and reperforation of the existing casing. Because of the sand problems associated with this well, and because a new well presents the greatest potential for increased production, this alternative is not recommended.

4. REPLACEMENT OF EXISTING WELL NO. 1-This alternative would include replacing Well No. 1 with a new 6" well; the abandonment of the existing well No. 1; the installation of a new 10 horsepower pump and controls; the installation of a phase converter; and startup and testing. For the reasons cited in 2. above, this alternative is not recommended.

5. REPLACEMENT OF EXISTING WELL NO. 2-This alternative includes the abandonment of existing Well No. 2 and the drilling of an 8" replacement well to an

estimated depth of approximately 290'. The replacement well installation includes a 20 horsepower pump; a phase converter; pump controls; startup; and testing. Because sand production cannot be eliminated or controlled in the existing Well No. 2, and because the potential for increased production exists with the drilling of a new well to replace Well No. 2, this alternative is preferred.

B. WATER STORAGE ALTERNATIVES

Four alternatives addressing the District's water storage needs included:

1. No action;
2. Construction of an elevated steel storage reservoir
3. Construction of an on-grade steel storage reservoir
4. Construction of a buried concrete storage reservoir

1. NO ACTION-This action would make no changes to the existing storage capabilities of the system. No storage facilities exist, and the system does not meet fire flow or irrigation demands. Because these deficiencies must be corrected, this alternative is not preferred.

2. CONSTRUCTION OF AN ELEVATED STEEL STORAGE RESERVOIR-This alternative would involve the construction of a spherical elevated tank with a capacity of 150,000 gallons. The tank must be elevated approximately 100' to provide adequate system operating pressure. This alternative is the most expensive of the alternatives that were considered, and would require ongoing maintenance, primarily painting, due to its exposure. Environmentally, it would produce a more significant visual impact than the other alternatives considered. For these reasons, this alternative is not preferred.

3. CONSTRUCTION OF AN ON-GRADE STEEL STORAGE RESERVOIR-This alternative requires the least initial initial cost of the alternatives considered. However, it would produce adverse visual impacts and would require periodic maintenance including painting. For these reasons, this is not the preferred alternative.

4. CONSTRUCTION OF A BURIED CONCRETE STORAGE RESERVOIR-This alternative involves the construction of a buried circular concrete tank located on land adjacent to the District. The reservoir would be approximately 55' in diameter with a depth of 10'. To reduce the visual impact of the tank, it would be partially buried with no fewer than two (2) feet exposed above grade in accordance with design requirements imposed by the Montana Department of Environmental Quality. Although not the least-cost alternative, this alternative is preferred because of its minimal maintenance requirements and because it produces the least adverse environmental impact.

C. WATER DISTRIBUTION SYSTEM ALTERNATIVES

Two alternatives addressing the District's water distribution needs included:

1. No action;
2. Upgrade the existing distribution system by looping dead-end mains at Glacier Lily and Elderberry Court; installing water meters at all service connections; and installing four (4) additional fire hydrants to bring the total to seven (7)

1. NO ACTION-This action would make no changes to the existing distribution system. The performance of the current distribution system is affected by two (2) dead-end mains, resulting in stagnation. The current system includes only three fire hydrants, not enough to meet necessary and practical requirements. The current system does not utilize water meters and, as a result, there are typically excessive water demands placed on the system. For these reasons, this alternative is not preferred.

2. UPGRADE THE EXISTING DISTRIBUTION SYSTEM BY LOOPING DEAD-END MAINS AT GLACIER LILY AND ELDERBERRY COURT; INSTALLING WATER METERS AT ALL SERVICE CONNECTIONS; AND INSTALLING FOUR (4) ADDITIONAL FIRE HYDRANTS TO BRING THE TOTAL TO SEVEN (7)-This action would significantly improve the ability of the system to supply water from the storage reservoir to a hydrant under a high demand and would alleviate the stagnation problems that currently exist. The installation of water meters would encourage water conservation through reduced consumption and would allow for the District to better manage its limited supply of water. This is the preferred alternative.

D. COST COMPARISON - PRESENT WORTH ANALYSES

The present worth analysis is a method of comparing alternatives in present day dollars and may be used to determine the most cost-effective alternative. Capital cost is first adjusted by subtracting the present worth of the salvage value at the end of 20 years. The present worth value of the annual operating and maintenance costs is calculated assuming a 6.0% interest rate over the 20-year planning period. The present worth of the annual operation and maintenance costs is then added to the adjusted capital cost to provide the total present worth cost of each alternative. These values are compared to determine the most cost-effective alternative.

1. Table 1 provides a summary of the present worth analysis of the water supply alternatives.

Table 1. Present Worth Analysis for Water Supply Alternatives

	Water Supply Alternatives				
	Alt. 1 No action	**Alt. 2** Improvements to existing Well No. 1	**Alt. 3** Improvements to existing Well No.2	**Alt. 4** Replacement Of existing Well No. 1	**Alt. 5** Replacement Of existing Well No. 2
Capital Cost (2006)	$0	$39,712	$45,560	$61,366	$83,060
20-Year Salvage Value	$0	$0	$0	$11,300	$13,550
Present Worth of Salvage Value (6.0%)	$0	$0	$0	$3,523	$4,225
Annual O&M Costs	$3,400	$3,400	$4,800	$1,950	$3,000
Present Worth of Annual O&M Costs (6.0%)	$38,998	$38,998	$55,056	$22,367	$34,410
Total Present Worth Cost	$38,998	$78,710	$100,616	$80,209	$113,245

Based on the present worth analysis for the water supply alternatives, Alternative 1 is the least costly.

2. Table 2 provides a summary of the present worth analysis for water storage alternatives.

Table 2. Present Worth Analysis for Water Storage Alternatives

	Water Storage Alternatives				
	Alt. 1 No action	**Alt. 2** Construction of an elevated steel storage reservoir	**Alt. 3** Construction of an on-grade steel storage reservoir	**Alt. 4** Construction of a buried concrete storage reservoir	
Capital Cost (2006)	$0	$721,215	$539,070	$605,230	
20-Year Salvage Value	$0	$136,000	$122,188	$198,438	
Present Worth of Salvage Value (6.0%)	$0	$42,405	$38,098	$61,873	
Annual O&M Costs	$0	$5,500	$3,500	$2,400	
Present Worth of Annual O&M Costs (6.0%)	$0	$63,085	$40,145	$27,528	
Total Present Worth Cost	$0	$741,895	$541,117	$570,885	

Based on the present worth analysis for water storage alternatives, Alternative 1 is the least costly.

3. Table 3 provides a summary of the present worth analysis for water distribution system alternatives.

Table 3. Present Worth Analysis for Water Distribution System Alternatives

	Water Distribution System Alternatives				
	Alt. 1 No action	**Alt. 2** Upgrade the existing distribution system			
Capital Cost (2006)	$0	$122,672			
20-Year Salvage Value	$10,000	$20,050			
Present Worth of Salvage Value (6.0%)	$3,118	$6,252			
Annual O&M Costs	$2,850	$2,850			
Present Worth of Annual O&M Costs (6.0%)	$32,690	$32,690			
Total Present Worth Cost	$29,572	$149,110			

Based on the present worth analysis for the water distribution system alternatives, Alternative 1 is the least costly.

E.. TOTAL ESTIMATED COSTS

The total estimated cost of the project is $1,024,700, broken down as follows:

Administrative and Financial Costs:	$ 69,200
Land Acquisition Costs:	$ 30,000
Engineering Costs, including Inspection	$ 159,695
Construction Costs	$ 785,500
Construction Contingency	$ 73,105
Total Estimated Cost	$1,117,500

F. USER COSTS AND AFFORDABILITY

The current average monthly residential water rate within the District is $43.00. This project will require a loan in the approximate amount of $365,000, resulting in a projected average rate of $58.14 per month.

IV. AFFECTED ENVIRONMENT

A. PLANNING AREA DESCRIPTION

The Spring Meadows County Water District is located approximately eight miles west of Missoula, just north and east of the junction of I-90 and Highway 93. The community is north of the Clark Fork River in Sections 21 and 22, Township 14 North, Range 20 West.

B. PROPOSED PROJECT SUMMARY

The proposed project includes upgrades to an existing system that was constructed in the early 1990's. The source of water for the system is groundwater provided by two wells; there is no water storage associated with the existing system.

Included in this proposed project are the construction of a 55' diameter by 10' deep buried (approximately 2' exposed at the top) concrete storage reservoir with a nominal capacity of 150,000 gallons; the drilling of a new well to be cased with 8" steel casing to an approximate depth of 280'; the installation of 65 water meters; the installation of four fire hydrants; the construction of a 560 square foot administration building; and buried piping, valves, and appurtenances. Buried piping consists of 2,530' of 4" pipe; 287' of 6" pipe; and 2,250' of 8" pipe.

Plans are currently being reviewed by the Montana Department of Environmental Quality for compliance with Circular DEQ 1, and construction is scheduled for the fall of 2007.

C. POPULATION PROJECTIONS AND PROJECT DESIGN CRITERIA

Population projections for the 20-year design period indicate that little growth is anticipated for the project area because all available lots have been developed. A 10% unanticipated growth factor has been incorporated into the design to allow for a reasonable amount of growth. Due to the limitations in water use data that has been kept for the Spring Meadows system, typical water use data from other Montana communities was used to develop the following design criteria:

Design Year:	2024
Number of Hookups	67
Projected Population	255
Average Demand Per Capita	440 gallons per capita per day
Average Daily Demand	112,200 gallons per day
Unanticipated Demand	11,200 gallons per day
Design Average Daily Demand	123,400 gallons per day
Daily Peaking Factor	1.8
Peak Daily Demand	222,120 gallons per day
Hourly Peaking Factor	3.0
Peak Hourly Demand	370,200 gallons per day
Fire Flow Requirements	500 gallons per minute for 2 hours
Fire Flow Storage Requirement	60,000 gallons
Minimum Storage Requirement	Fire Flow Plus Average Day = 123,400 gallons
Proposed Storage	150,000 gallons

D. NATURAL FEATURES AND LAND USE WITHIN THE PLANNING AREA

The immediate land use within the District is residential with no commercial establishments. The community is bordered by pasture and agricultural lands to the east and north. Development is occurring to the south and to the west; the intersection of I-90 and Highway 93, approximately two miles south of the District, is commercialized. Development adjacent to the District is a

contributing factor to the choice for a buried water storage reservoir as the preferred alternative for this project, since it will present little adverse visual impact to the area.

V. ENVIRONMENTAL IMPACTS OF PROPOSED PROJECT

A. DIRECT AND INDIRECT ENVIRONMENTAL IMPACTS

1. Housing and Commercial Development – Land use within the district boundaries includes residential homes and a fire station. Because all of the lots within the District have been developed, it is not anticipated that this project will have a significant impact on existing or future development.

2. Future Land Use – Land use within the District boundaries is residential. Because all of the lots within the District have been developed, land use within the planning area is not expected to change significantly in the future. No adverse impacts to land use are expected from the proposed project.

3. Floodplains and Wetlands –No significant impacts are anticipated.

4. Cultural Resources –No significant impacts are anticipated. In the event that cultural artifacts are encountered during construction, the Montana State Historic Preservation Office will be notified.

5. Fish and Wildlife – The U.S. Fish and Wildlife Service and the Montana Department of Fish, Wildlife, and Parks were both contacted to identify any unique resources within the project area. No long-term adverse impacts are anticipated..

6. Water Quality – No long-term adverse impacts are anticipated.

7. Air Quality - Short-term negative impacts on the air quality will occur from heavy equipment, dust, and exhaust fumes during project construction. Proper construction practices and dust abatement measures will be implemented during construction to control dust, thus minimizing this problem.

8. Public Health – The proposed project is not expected to have adverse impacts on public health, and should, instead, enhance public health by providing a safe and reliable water supply for the community.

9. Energy – Because of improvements in the efficiency of the new replacement well that is being drilled as part of this project and the installation of power conversion systems for the pumps in both supply wells, long-term power savings are anticipated.

10. Noise - Short-term impacts from increased noise levels may occur during construction of the proposed project improvements. No long-term adverse impacts are anticipated.

B. UNAVOIDABLE ADVERSE IMPACTS

Short-term construction impacts including noise, dust, and traffic disruption will occur but should be minimized through proper construction management. Energy consumption during construction cannot be avoided.

VI. PUBLIC PARTICIPATION

Formally advertised public hearings were held to inform the public of the proposed project and solicit comments on November 19, 2003 and on April 14, 2004. There is no known opposition to the project, and there is documented support for the project from local citizens and the Midwest Assistance Program.

VII. REFERENCE DOCUMENTS

The following documents were utilized in the environmental review of this project and are considered to be part of the project file:

A. Spring Meadows County Water District Preliminary Engineering Report; Water Supply and Distribution System; April 2004; prepared by Anderson-Montgomery Consulting Engineers, Helena, Montana.
B. Draft Contract Documents & Specifications; June 2006; prepared by Anderson-Montgomery Consulting Engineers, Helena, Montana.
C. Draft Construction Drawings for the Spring Meadows County Water District, Missoula, Montana; Spring Meadows Water System Improvements Project; prepared by Anderson-Montgomery Consulting Engineeres, Helena, Montana.

VIII. AGENCIES CONSULTED

The following agencies were contacted regarding the proposed construction of this project:

A. The Montana Department of Fish, Wildlife and Parks was asked in an April 13, 2004 letter by the district's consultant for comments on the proposed project. In a response dated April 23, 2004, Arnold Dood, Endangered Species Coordinator, stated that no impacts to listed threatened or endangered species from the storage tank project were anticipated.

B. The U.S. Fish and Wildlife Service was asked in an April 13, 2004 letter by the district's consultant for comments on the proposed project. No response was received.

C. The U.S. Army Corps of Engineers was contacted by letter dated April 13, 2004 and responded in a letter dated April 29, 2004. Based on that agency's review, it does not appear that a Department of the Army Section 404 Permit is required for the project.

D. The Montana Historical Society's Historic Preservation Office reviewed the proposed project and concluded that, because the ground has already been disturbed, there is a low likelihood that the project will impact cultural properties or resources. Based on this, that agency's recommendation is that a cultural resource inventory is unwarranted.

E. The Montana Department of Natural Resources and Conservation [Floodplain Section] was contacted in a letter dated April 13, 2004. No response was received.

IX. APPLICABLE REGULATIONS AND PERMITTING AUTHORITIES

No additional permits will be required from the Drinking Water State Revolving Fund Program of the Department of Environmental Quality for this project after review and approval of the submitted plans and specifications. However, a stormwater general discharge permit for construction activities must be obtained from the department's Water Protection Bureau prior to the beginning of construction. A construction dewatering permit from the department's Water Protection Bureau may also be required if groundwater is encountered during construction of the new facilities and dewatering activities are necessary.

X. RECOMMENDATION FOR FURTHER ENVIRONMENTAL ANALYSIS

[ ] EIS [ ] More Detailed EA [X] No Further Analysis

Rationale for Recommendation: Through this environmental assessment, the department has made a preliminary determination that none of the adverse impacts of the proposed Spring Meadows County Water District system improvements project are significant. Therefore, an environmental impact statement is not required. The environmental review was conducted in accordance with the Administrative Rules of Montana (ARM) 17.4.607, 17.4.608, 17.4.609 and 17.4.610. The environmental assessment is the appropriate level of analysis because none of the adverse effects of the impacts are expected to be significant.

EA prepared by:

Mark A. Smith, P.E. Date

EA reviewed by:

Todd Teegarden, P.E. Date